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## The knowledge of Schizophrenia among health-related students in Umm Al-Qura University: A cross sectional survey

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**ABSTRACT**

**Background:** Schizophrenia is a mental psychotic disorder where the patient may experience hallucinations or disorganized speech with the likely correlation with negative symptoms. This study aimed to estimate the knowledge, awareness and attitude of schizophrenia among health-related students at Umm Al-Qura University in Saudi Arabia. **Methods:** A cross sectional study was conducted among interns and undergraduate students from different health related specialties at Umm Al-Qura University. Data is collected by an online questionnaire distributed via various social media platforms. **Result:** Out of 830 students, the overall response about previous hearing of schizophrenia was very positive, 85.1%. Unexpectedly, only a minority of students reported a good level of knowledge, 4.46%. In opposition, most students documented a poor level of understanding and knowledge, 53.98%. Students of college of medicine significantly correspond with the level of knowledge (P-value, 0.008). Further, students from the second academic year showed significant difference with a moderate level of knowledge (P-value, 0.013). In contrast students from the third year showed a significant association with a poor level of knowledge (P-value, 0.013). **Conclusion:** This study finds out that most students have an insufficient understanding of schizophrenia, a demand for further investigation among Saudi Universities. Additionally, this study found an incidental high level of students with a history of schizophrenia, which recommended screening of schizophrenia among students for early detection.

**Keywords:** Schizophrenia, knowledge, Health-related students.

## 1. INTRODUCTION

Based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-V), schizophrenia is a mental psychotic disorder where the patient might experience delusions, hallucinations or disorganized speech with the possible association with negative symptoms (avolition, diminished emotional expression) (Tandon et al., 2013; Patil et al., 2022). It is considered a complex mental disorder with a prevalence of 0.28% globally and a significant increase in disease burden worldwide, especially in low- and middle-income countries (Charlson et al., 2018). The cause of schizophrenia is theorized to be multi factorial (Morera-Fumero & Abreu-Gonzalez, 2013). However, it remains unknown and under investigation (Morera-Fumero & Abreu-Gonzalez, 2013).

Stigma, discrimination and social exclusion are problems that patients face with schizophrenia. Stigma can be defined as knowledge, attitude and behavior hurdles, with suffering exposed to discriminated or discriminatory behavior. Furthermore, stigma can affect the treatment plan, creating a barrier to recovery for them, with their diagnosis of schizophrenia aided primarily by clinical questionnaires (Anis et al., 2020; Zahid & Best, 2021; Tomasik & Rahmoune, 2016). Low schizophrenia literacy could lead to more stigmatization and discrimination, affecting the recognition of the symptoms by the public and false beliefs about the aetiology of schizophrenia (Anis et al., 2020; Zahid & Best, 2021; Tomasik & Rahmoune, 2016). Therefore, increasing schizophrenia education could have a beneficial effect in reducing stigma and patients are recognized during the first episode. In addition, stigma could lead to prolonged duration of treatment or even complete avoidance of the treatment plan by patients with schizophrenia, leading to many unwanted adverse outcomes (Thorsteinsson et al., 2019).

A study was conducted among medical and psychology students in Italy (Magliano et al., 2014). The study addressed common problems, including the definition of stereotypes and prejudice, stigma and schizophrenia, dangers of schizophrenia with scientific evidence. Students were reassessed after the session, which resulted in significant changes in their perspective to become less stigmatized concerning the curability, perilousness and unpredictability of schizophrenia (Magliano et al., 2014). A cross sectional study conducted on international students in Japan yielded a controversial result about the stigmatization of schizophrenia. It stated that depression was associated with high perceived stigma among students who have a low level of literacy about depression (Takeuchi & Sakagami, 2018).

In Saudi Arabia, articles about the awareness of schizophrenia are insufficient. A study conducted in the eastern region of Saudi Arabia shows that public participants have correct knowledge about some aspects of schizophrenia still, other false aspects of knowledge (Alhommos & Al-Janoubi, 2018). More research on attitudes toward mental illness, specifically those in mental health-related fields, is necessary to ensure the quality of care for people with mental illness. This is important because interventions directed at these target groups may be more cost-effective than interventions directed at the public (Sartorius et al., 2002). Another primary concern is that medical students have been shown to have stigmatizing attitudes toward mental illnesses, which they hold onto in their professional lives (Mukherjee et al., 2002).

Due to the importance of knowledge of schizophrenia among the population especially for medical students this study will assess the background baseline knowledge and awareness of schizophrenia among medical students at Umm Al-Qura University.

## 2. METHODOLOGY

### **Study design and sitting**

A self managed survey was utilized in this electronic survey, conducted in March 2022 at Umm Al-Qura University after granting the ethical IRB from UQU's ethical committee Registration No in National committee of Bio Ethics HAPO-02-K-012-2022-01-925. We included male and female graduates (interns) and undergraduate students from health-related specialties at Umm Al-Qura University, including: (Medicine, Dentistry, Pharmacy, Nursing, Anesthesia Technology, Clinical Nutrition, Emergency Medical Services, Epidemiology, Health Information Technology and Management, Health Promotion and Education, Laboratory Medicine Physiotherapy and Respiratory Care).

### **Sample methods and size**

A convenience sampling method was utilized to stratify students according to their specialties, while the sample size was determined using Stat Calc of Open Epi software of Rollin School of Public Health, Emory University, USA (Sullivan et al., 2009). However, the final recorded sample size was 830 during the data collection.

### Data collection

An electronic survey was distributed among students via online social media channels platforms. First, we obtained students' online consent and permission and all inquiries were answered on the spot via study investigators. Respectively, the survey consists of two separate sections. First, we began to gather participants' demographic profiles, including age, gender, academic year, specialty, the awareness of school before, personal history and family history of schizophrenia. Then, the second part included a closed-end question that included general and medical information regarding schizophrenia, whose idea was driven from previously published studies (Anis et al., 2020).

### Data scoring

A modified bloom's criteria were utilized to estimate the knowledge score, in which the overall score ranged from 80-100% was conceded good level of knowledge, 50-79% was considered a moderate level of knowledge, while scores less than 50% was regarded as a poor level of knowledge (Seid & Hussen, 2018).

### Data analysis

After data completion, the data was extracted to a separate sheet of Microsoft excel for typographical error checking and companies. After verifying for completeness and minimal misspellings, data was carried out to the Statistical Package for Social Studies v.23 spreadsheet (IBM, Armonk, NY). Descriptive statistical analysis were presented in terms for categorical variables, means and standard deviations for continuous variables and a p-value of less than or equal to 5% was considered significant. The Chi-square test was used to compute the categorical variables.

## 3. RESULTS

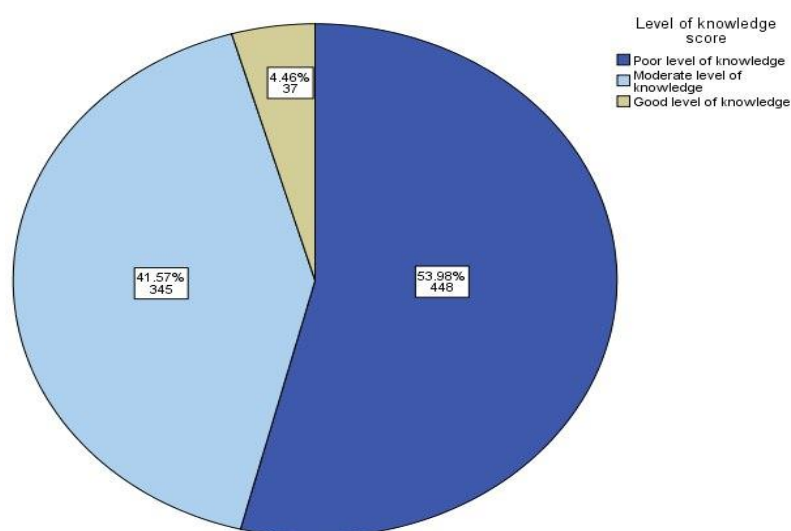
We interviewed an overall 830 health-related students via an online survey at Umm Al-Qura University. Students' age mean was 21.85 (SD=1.75) and students whose age group ranged from 19-22 years old were predominantly represented (n=551, 66.4%). There was a close response from males and females, while females represented the most responses (n=491, 59.2%). (Table 1) Students from 3rd-medical year were predominant representing (n=210, 25.3%), followed by 2nd-medical-year (n=181, 21.8%) and 6th year medical students (n=115, 13.9%). Furthermore, the most three representing collages were collage of medicine, dentistry and pharmacy representing (n=325, 39.2%), (n=101, 12.2%) and (n=94, 11.3%), respectively (Table 1).

**Table 1** Students' demography

Variable	Category	N	(%)
Age (mean (SD))	(21.85 (1.75))		
Age groups	19-22	551	66.4%
	23-25	267	32.2%
	26-30	12	1.4%
Gender	Male	339	40.8%
	Female	491	59.2%
Academic year	2 <sup>nd</sup> year	181	21.8%
	3 <sup>rd</sup> year	210	25.3%
	4 <sup>th</sup> year	168	20.2%
	5 <sup>th</sup> year	83	10.0%
	6 <sup>th</sup> year	115	13.9%
	Intern	73	8.8%
Students' collages	Medicine	325	39.2%
	Dentistry	101	12.2%
	Pharmacy	94	11.3%
	Nursing	43	5.2%
	Anesthesia Technology	28	3.4%
	Clinical Nutrition	67	8.1%
	Emergency Medical services	22	2.7%

	Epidemiology	18	2.2%
	Health Information Technology and Management	42	5.1%
	Health Promotion and Education	61	7.3%
	Laboratory Medicine	14	1.7%
	Physiotherapy	13	1.6%
	Respiratory Care	2	0.2%
Heard about schizophrenia	Yes	706	85.1%
	No	124	14.9%
Past history of schizophrenia	Yes	47	5.7%
	No	783	94.3%
Family history of schizophrenia	Yes	83	10.0%
	No	747	90.0%

Most students had good awareness regarding previous hearing about schizophrenia (n=706, 85.1%) (Table 1) however, this is far different from estimating the level of knowledge regarding schizophrenia medical-related information, in which the majority of students reported a poor level of understanding and knowledge (n=448, 53.98%), followed by a moderate and good level of knowledge (n=345, 41.57%) and (n=37, 4.46%), respectively (Figure 1).



**Figure 1** Students' level of knowledge scores (N.830).

The data have revealed about 5.7% of students had a previous history of schizophrenia, while about 10% had a family history of schizophrenia (Table 1). The association between level of knowledge and students' demography was described in Table 2 and Table 3. Collage of medicine shows a statistical significance with the level of knowledge (P-value, 0.008). Students from the 2nd year corresponded significantly with a moderate level of knowledge (n=95) (P-value, 0.013). In contrast, students from the 3rd year corresponded significantly with a poor (n=136) and a good level of knowledge (n=12) (P-value, 0.013) (Table 2 and 3).

**Table 2** The association between students' demographic profiles and level of knowledge score

Variable	Category				p-value
		Good level of knowledge (N)	Moderate level of knowledge (N)	Poor level of knowledge (N)	
Age groups	19-22	28	212	311	0.099

Gender	23-25	9	126	132	0.770
	26-30	0	7	5	
	Male	13	142	184	
	Female	24	203	264	
Students' specialties	Medicine	12	149	164	0.008*
	Dentistry	6	42	53	
	Pharmacy	3	39	52	
	Nursing	3	14	26	
	Anesthesia Technology	4	7	17	
	Clinical Nutrition	1	42	24	
	Emergency Medical services	1	9	12	
	Epidemiology	1	2	15	
	Health Information Technology and Management	1	14	27	
	Health Promotion and Education	3	20	38	
	Laboratory Medicine	1	2	11	
	Physiotherapy	1	4	8	
	Respiratory Care	0	1	1	
Academic year	2 <sup>nd</sup> year	8	78	95	0.013*
	3 <sup>rd</sup> year	12	62	136	
	4 <sup>th</sup> year	6	74	88	
	5 <sup>th</sup> year	2	48	33	
	6 <sup>th</sup> year	5	53	57	
	Intern	4	30	39	
Heard about schizophrenia	Yes	14	293	399	<0.001*
	No	23	52	49	
Past history of schizophrenia	Yes	0	11	36	0.004*
	No	37	334	412	
Family history of schizophrenia	Yes	1	25	57	0.012*
	No	36	320	391	

Surprisingly, students who reported a good level of awareness regarding schizophrenia term had corresponded significantly with a poor level of knowledge (n=399) (P-value, <0.001). In contrast, students with a poor level of awareness corresponded significantly with a moderate level of knowledge (n=52) (P-value, <0.001). (Table 2) Both students with a previous history of schizophrenia (n=36) and students with a positive family history of schizophrenia (n=57) corresponded significantly with a poor level of knowledge (P-value, 0.004, 0.012, respectively) (Table 2 and 3). Among all participants 584 approved that asymptomatic schizophrenia patients should continue their medication (P-value<0.001) (Table 4).

**Table 3** The association between students' demographic profiles and level of knowledge score

Variable	Category				p-value
		Good level of knowledge (N)	Moderate level of knowledge (N)	Poor level of knowledge (N)	
Age groups	19-22	28	212	311	0.099
	23-25	9	126	132	
	26-30	0	7	5	
Gender	Male	13	142	184	0.770
	Female	24	203	264	
Students' specialties	Medicine	12	149	164	0.008*
	Dentistry	6	42	53	
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	Nursing	3	14	26	
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	Clinical Nutrition	1	42	24	
	Emergency Medical services	1	9	12	
	Epidemiology	1	2	15	
	Health Information Technology and Management	1	14	27	
	Health Promotion and Education	3	20	38	
	Laboratory Medicine	1	2	11	
	Physiotherapy	1	4	8	
	Respiratory Care	0	1	1	
Academic year	2 <sup>nd</sup> year	8	78	95	0.013*
	3 <sup>rd</sup> year	12	62	136	
	4 <sup>th</sup> year	6	74	88	
	5 <sup>th</sup> year	2	48	33	
	6 <sup>th</sup> year	5	53	57	
	Intern	4	30	39	
Heard about schizophrenia	Yes	14	293	399	<0.001*
	No	23	52	49	
Past history of schizophrenia	Yes	0	11	36	0.004*
	No	37	334	412	
Family history of schizophrenia	Yes	1	25	57	0.012*
	No	36	320	391	

**Table 4** The association between academic years and management of schizophrenia related responses

Categories	Answers	Academic years						P-value
		2 <sup>nd</sup> year	3 <sup>rd</sup> year	4 <sup>th</sup> year	5 <sup>th</sup> year	6 <sup>th</sup> year	Intern	
The only treatment for schizophrenia is ECT	Yes	21	44	20	5	13	8	0.007*
	No	160	166	148	78	102	65	
Medication should be continued in schizophrenia asymptomatic patients	Yes	101	150	117	67	89	60	<0.001*
	No	80	60	51	16	26	13	
schizophrenia medication are addictive	Yes	110	145	113	46	58	40	0.007*

	No	71	65	55	37	57	33	
The main treatment of schizophrenia is medication	Yes	91	116	97	53	72	48	0.111
	No	90	94	71	30	43	25	
schizophrenia medication considered sleep medication	Yes	124	127	114	39	71	42	0.013*
	No	57	83	54	44	44	31	

#### 4. DISCUSSION

The current study investigates the awareness and the level of knowledge about schizophrenia among students of health-related colleges at Umm Al-Qura University, as there is a lack of studies about healthcare students' level of knowledge about schizophrenia. Our study found that the majority of students (85.1%) were aware of the term schizophrenia, but that does not reflect their level of knowledge about schizophrenia, as the current study revealed that more than half of students (53.98%) have a low level of knowledge about schizophrenia, followed by 41.57% they have a moderate level of knowledge. Unfortunately, only 4.46% small portions of the students have a good level of knowledge about schizophrenia.

These results can be red flags as current healthcare students are the future healthcare providers who will confront more or fewer schizophrenia patients. Therefore, their level of knowledge has an essential role because it is reflected in their attitude and stigma toward their future patients (Mukherjee & Fialho, 2002) especially schizophrenia appears to have a higher level of stigma in comparison with other psychiatric disorders (Svensson et al., 2014; Jorm et al., 1999).

Surprisingly, students with a history of schizophrenia showed a statistically significant association with a low level of knowledge about schizophrenia ( $p = 0.004$ ). In addition, students with a family history of schizophrenia showed a low level of knowledge about schizophrenia, and this finding was statistically significant ( $p = 0.012$ ). These two findings are contraindicated with the results of other previous study conducted on high school students in India to explore their level of knowledge about schizophrenia which shows that family history of schizophrenia and personal experiences of schizophrenia is correlated with a better attitude toward patients with schizophrenia (Anis et al., 2020). Furthermore, those students with better attitudes are associated with a better level of knowledge in general (Anis et al., 2020). This suggests that schizophrenia is a perplexing disorder, even for people affected by it. Also, these findings raise a red flag about the extent of knowledge poverty of schizophrenia.

We recommend that healthcare institutions and educational facilities invest more in awareness campaigns about schizophrenia in society and ameliorate the psychology and psychiatry curriculum of healthcare students, as the previous study shows that intervention to the public with health education about schizophrenia has a positive outcome on their knowledge (Thorsteinsson et al., 2019). The presented study has its limitation, as it only studied the knowledge level and ignored the attitude toward patients with schizophrenia as in other asymptotic studies. Another limitation encountered was the lack of studies focusing on the knowledge of schizophrenia among students, especially with similar methods that we used, which makes comparing with other studies a challenging point.

#### 5. CONCLUSION

This study has found that most students generally reported a poor level of knowledge followed by moderate and good levels despite previous hearing about schizophrenia. This research has thrown up many questions in need of further investigation to determine the reasons for this gap between awareness and level of knowledge among health-related specialties' students. Further research in this field could help increase awareness and understanding, which has a beneficial effect on reducing stigma and helping in the early recognition of first schizophrenia presentations.

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#### Ethical approval

The study was approved by the Medical Ethics Committee of Umm Al-Qura university (Ethical approval code: HAPO-02-K-012-2022-01-925).

#### Informed consent

Written electronic informed consent was obtained from all individual participants included in the study.



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This study has not received any external funding.

### Conflict of interest

The authors declare that there is no conflict of interests.

### Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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